AMENDMENTS TO THE SPECIFICATION

Please replace the paragraph beginning at page 8, line 9, and ending at page 9, line 31, with the following:

---Process of liquefying a gaseous, methane-rich feed ~~(10)~~ (20) to obtain a liquefied product (23), is provided comprising:

(a) supplying the feed ~~(10)~~ (20) at elevated pressure to a first tube side (13) of a main heat exchanger (1) at its warm end (3), liquefying the feed against evaporating refrigerant to get a liquefied stream (23), removing the liquefied stream (23) from the main heat exchanger (1) at its cold end (5) and passing the liquefied stream (23) to storage as liquefied product;

(b) removing evaporated refrigerant (25) from the shell side (10) of the main heat exchanger (1);

(c) compressing in at least one refrigerant compressor (30) the evaporated refrigerant to get high-pressure refrigerant (32);

(d) partly condensing (42, 43) the high-pressure refrigerant (32) and separating in a separator (45) the partly-condensed refrigerant into a liquid heavy refrigerant fraction (47) and a gaseous light refrigerant fraction (48);

(e) sub-cooling the heavy refrigerant fraction in a second tube side (15), introducing the heavy refrigerant stream (52) at reduced pressure into the shell side (10) of the main heat exchanger (1) at its mid-point (7), and allowing the heavy refrigerant stream to evaporate in the shell side (10); and

(f) cooling, liquefying and sub-cooling at least part of the light refrigerant fraction ~~(47)~~ (48) in a third tube side (16) to get a sub-cooled light refrigerant stream, introducing the light refrigerant stream (57) at reduced pressure into the shell side (10), and allowing the light refrigerant stream to evaporate, the process further comprises adjusting the composition and the amount of refrigerant and controlling the liquefaction process, using an advanced process controller based on model predictive control to determine simultaneous control actions for a set of manipulated variables in order to optimize at least one of a set of parameters whilst controlling at least one of a set of controlled variables, wherein the set of manipulated variables includes the mass

flow rate of the heavy refrigerant fraction, the mass flow rate of the light refrigerant fraction, the amount of refrigerant components make-up, the amount of refrigerant removed, the capacity of the refrigerant compressor and the mass flow rate of the methane-rich feed, wherein the set of controlled variables includes the temperature difference at the warm end (3) of the main heat exchanger (1), a variable relating to the temperature of the liquefied natural gas, the composition of the refrigerant entering the separator (45), the pressure in the shell of the main heat exchanger, the pressure in the separator (45) and the level of the liquid in the separator (45), and wherein the set of variables to be optimized includes the production of liquefied product.---